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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,042	12/21/2001	John T. Coffey	TI-32999	8627

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EXAMINER	
BAYARD, EMMANUEL	
ART UNIT	**PAPER NUMBER**
2638	

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,042	COFFEY, JOHN T.	
	Examiner	Art Unit	
	Emmanuel Bayard	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is in response to amendment filed on 7/12/05 in which claims 1-26 are pending the applicant's amendments have been fully considered but they are moot based on the new ground of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tzannes et al U.S. Patent No 5,636,246 in view of Trelewicz U.S. Patent No 5,774,751.

As per claim 1, Tzannes et al teaches method for error recovery in a wireless network after a collision between a transmission and some narrowband interference, wherein the transmission is decoded using a sequential decoder, the method comprising: receiving the transmission (see figs. 1-3 elements 150, 240, 320); decoding the transmission (see fig.1-2 elements 128, 244 and col.4, line 17 and col.6, lines 10-20); detecting the narrowband interference (see col.2, lines 67-col.3, lines 1-5 and col.8, lines 15-16) in the transmission; controller (see figs. 1, 3 elements 131, 324) is the same as the claimed (reconfiguring) a digital signal processor (see fig.1 equalizer 124) to take into account the narrowband interference (see 8, lines 10-16). Since the controller of Tzannes controls the equalizer, which is the same as the claimed digital

processor, to adapt to monitor the narrow band interference therefore the reconfiguration process is taught by Tzannes.

However Tzannes et al does not teach backtracking over previously decoded portions of the transmission; and decoding the transmission using the reconfigured digital signal processor.

Trelewicz teaches a loop recovery is the same as the claimed (backtracking) (see fig.1 element 36) (see col.2, lines 30-45over previously decoded portions (see fig.1 element 44 and col.3, lines 6-10) of the transmission; and decoding (see figs.1 and 3 element 48 and col.5, lines 48-67 and col.6, lines 1-10) the transmission using the reconfigured digital signal processor.

It would have been obvious to one of ordinary skill in the art to implement the teaching of Trelewicz into Tzannes as to adjust the coefficients until the performance is acceptable as taught by Trelewicz (see abstract).

As per claim 2, Tzannes et al does teach wherein the transmission is performed a single symbol at a time, and wherein the receiving step comprises receiving the transmission a single transmitted symbol at a time (see fig.1 and col.4, lines 35-45).

As per claim 3, Trelewicz teaches wherein the first decoding step comprises: computing a set of possible hypotheses based on the single transmission symbol (see abstract); calculating a performance metric (col.5, lines 33-67 and col.6, lines 1-9) for each hypothesis in the set of possible hypotheses; and selecting a hypothesis corresponding to the best performance metric (see abstract and col.5, lines 33-67 and col.6, lines 1-9). Furthermore implementing such teaching into Tzannes would have

been obvious to one skilled in the art as to adjust the coefficients until the performance is acceptable as taught by Trelewicz (see abstract).

As per claim 4, Tzannes and Trelewicz in combination would teach wherein the backtracking step comprises backtracking over selected hypotheses to adjust the coefficients until the performance is acceptable as taught by Trelewicz (see abstract).

As per claims 5-7, Tzannes et al does teach wherein the detecting step comprises detecting a burst of symbol errors (see col.8, lines 10-15 and col.9, lines 40-43).

As per claim 8, Tzannes et al does teach wherein the transmission occurs over a communications channel, and wherein the reconfiguring step comprises: obtaining a frequency response (see fig.1 element 120) of the communications channel; determining the narrowband interference based on the frequency response (see col.2, lines 67-col.3, lines 1-5 and col.8, lines 15-16); calculating a set of configuration coefficients (see col.3, lines 63-67 and col.4, lines 5-15) based on the determined narrowband interference; and applying the calculated set of configuration coefficients to the digital signal processor (see col.4, lines 5-15).

As per claims 9-10, Tzannes and Trelewicz in combination would teach wherein the backtracking step continues until the sequential decoder reaches a part of the transmission prior to the collision hypotheses to adjust the coefficients until the performance is acceptable as taught by Trelewicz (see abstract).

As per claim 11, Tzannes et al does teach, wherein the digital signal processor comprises an adaptive equalizer (see fig.1 element 124).

As per claim 12, Tzannes et al does teach wherein the digital signal processor comprises an adaptive equalizer (see fig.1 element 124) and a FIR is the same as the claimed (digital filter) (see abstract).

As per claim 13, Tzannes et al does teach, wherein the digital filter is reconfigured to filter out the narrow band interference (see col.8, lines 15-16).

As per claim 14, Tzannes et al does teach wherein the adaptive equalizer (see fig.1 element 124) is reconfigured to compensate for changes in the channel response due to the narrow band interference.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 15-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Tzannes et al U.S. Patent No 5,636,246.

As per claims 15 and 22, Tzannes et al does teach A radio receiver comprising: a receiver for receiving transmissions transmitted over a communications medium (see fig.1 element 150), therefore the antenna for receiving is inherent taught by Tzannes; an analog processing unit coupled to the antenna, the analog processing unit containing circuitry to filter (see fig.1 element 114), demodulate, and amplify a received signal provided by the antenna are inherent taught by Tzannes; an analog-to-digital converter (see fig.1 element 116) coupled to the analog processing unit, the converter containing

circuitry to convert the filtered, demodulated, and amplified received signal from the analog processing unit into a digital bit stream; an Equalizer is the same as the claimed (digital processing unit) (see fig.1 element 124 coupled to the analog-to-digital converter, the digital processing unit containing circuitry to digitally filter and adaptively equalize the digital bit stream (see abstract and col.4, lines 9-15); a first control (see fig.1 element 131) and information line coupled to the Equalizer (digital processing unit) (see fig.1 element 124), the first control and information line of the digital processing unit; a sequential decoder coupled to the digital processing unit, the sequential decoder containing circuitry to decode a digital data stream from the digital bit stream; and a second control and information line (see fig.1 element 131) coupled to the sequential decoder (see fig.1 element 128), the second control and information of the sequential decoder.

Tzannes et al does not explicitly teach a first and second control lines to provide configuration and operational information to both the equalizer (digital processor) and the decoder respectively. However the controller of Tzannes et al monitors the recovered symbols for errors, detects narrowband interference and signals the transmitter to prevent data from being placed in corrupted channel and finally initiates convolution information in a shift register (see col.8, lines 10-15 and col.9, lines 3-8). Since these three steps (monitoring, detecting and initiating) are essential to operation and the configuration of the transceiver of Tzannes, therefore the controller having first and second control lines to provide configuration and operational information is inherently taught by Tzannes as to perfectly synchronize the receiver and transmitter as

taught by Tzannes (see col.7, lines 13-17).

As per claim 16, Tzannes et al does teach wherein the radio receiver receives transmissions within a frequency band of interest, and wherein the radio receiver further comprises an interference detection unit coupled to the digital processing unit and the sequential decoder, the interference detection unit containing circuitry to detect the presence of interference and errors within the frequency band of interest (see 8, lines 10-19).

As per claim 17, Tzannes et al would teach wherein the interference detection unit is a Bluetooth transmission detector as to perfectly synchronization operation the receiver and transmitter.

As per claims 18 and 20, Tzannes et al wherein the radio receiver further comprises a shift register is the same as the claimed (memory) (see fig.1 element 118 or 122 and col.4, lines 3-5) coupled to the digital processing unit and the sequential decoder, the memory containing pre-computed profiles of a plurality of different types of interference and errors.

As per claim 19, Tzannes et al would teach, wherein the pre-computed profiles may be loaded into the digital processing unit and the sequential decoder immediately upon detection of interference and errors as to perfectly synchronization operation the receiver and transmitter.

As per claim 21, Tzannes et al would teach wherein the set of updated coefficients for the digital filter and the adaptive equalizer is continually updated based on a measured channel response of the communications channel as to perfectly

synchronization operation the receiver and transmitter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over TreleWicz U.S. Patent No 5,574,751.

As per claim 23, Trelewicz teaches a communication device comprising: an analog unit configure to process incoming signals (see 1 element 24); an analog-to-digital converter (see fig.1 element 25) couple to the analog unit and configure to convert incoming signals into digital streams comprising symbols; a decoder (see fig.1 element 48 and col.2, lines 40-43) coupled to the analog-to-digital converter and configure to: select a final state (see fig.3 element 92 and col.5, lines 30-31); calculate a performance metric (see fig.3 element 94 and col.5, lines 33-39); compare the performance metric with a predetermine threshold (see fig.3 element104 and col.52-67); and if the performance metric not sufficient (M<E) then backtrack through the symbols (see fig.3 and col.5,lines 50-67).

However Trelewicz does not explicitly teaches compare the performance metric with a predetermine threshold and if the performance metric exceeds the predetermine threshold then backtrack through the symbols. Since both applicant and Trelewicz comparison process of would achieve the same outcome. Therefore implementing a

comparison process wherein if the performance metric exceeds the predetermine threshold then backtrack through the symbols into Trelewicz would have been obvious to one skilled in the art as to achieve the best acceptable performance free of noise and interference.

As per claims 24-25, Trelewicz would teach wherein the branch metric is a sum of a performance metric of a current state and a performance metric the first state as to achieve the best acceptable performance free of noise and interference.

As per claim 26, Trelewicz would teach: select a second state as to achieve the best acceptable performance free of noise and interference.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Paik et al U.S. Patent No 5,363,408 teaches a mode selective quadrature amplitude modulation.

Kitaori U.S. Patent No 5,440,572 teaches a digital signal decoding apparatus (*).

Whikehart et al U.S. Patent no 6,256,358 B1 teaches a digital signal processing (*).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vanderpuye Kenneth can be reached on 571 272 3078. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2638

9/26/05

EMMANUEL BAYARD
PRIMARY EXAMINER